

Join us for the 2022 Broadcasters Clinic

Oct. 11 - 13



Madison Marriott West Hotel in Middleton, WI
Early Bird rates in place until Aug. 31

The special WBA rate at Madison Marriott West is \$143/night.
The deadline to book is Sept. 19

Register at wi-broadcaster.org/clinic



Exhibitors register at wi-broadcaster.org/exhibitor to secure your booth.

Tuesday, Oct. 11



8:30 a.m. - A Practical Guide to Building a Virtualized Radio Station On-Premises or in the Cloud

Kirk Harnack, Telos Alliance

Some of the parts and pieces to build a virtualized radio station are available now. Some of these key functionalities have been around for a few years. Yet instantiating a working broadcast "facility" in a fully virtual environment has been elusive.

Prior to the pandemic we weren't particularly motivated to make this work. And, during the pandemic's lockdowns and social distancing we've been fully tasked to use what we already have. Now that we've experienced remote workflows it's time to see how fully virtualized broadcast infrastructure could be useful and beneficial to our operations.

This presentation will examine actual, working virtualized broadcast systems including automation playout, voice tracking, live to air, virtual mixing, multi-site and multi-talent signal and workflows, as well as audio processing, stream encoding, and studio-transmitter links. We'll gain understanding and confidence in these virtualized broadcast systems so they can be a solid option as we move forward in our broadcast workflows.

9:15 a.m. - Radio Moves to the Cloud... Full-Time

Jim Hammond, Radio.Cloud

• We will discuss a high-level view of how playout in cloud-based environments for 24/7 operation is fundamentally different from converting a traditional system using some cloud services.

• The ease of interfacing with existing playout, music, and traffic systems for stations and networks that already have a solution for traditional operation in place.

• Leveraging machine learning to allow a staff to create content in a much more efficient manner and have a great sound.

• Flexibility to make changes at the last minute in a programming that has already been created.

• Giving networks the ability to serve affiliates with different imaging, music, news, and flexible length stopsets at the same time.



10 a.m. - Cloud-Based Radio Broadcasting and the Last Mile Problem

Mike Pappas, Orban

If the futurists are correct, the future of radio broadcast is "cloud-based."

We all know that operating cloud-based automation and playout systems, along with audio processing, is a relatively easy project. But getting from the "Cloud" to an FM or AM transmitter

site reliably, especially with last-mile issues of low bandwidth (or no bandwidth), is a significant issue.

Coupled with this issue are a few other technical challenges: How to handle RDS (with FM), deal with local EAS insertion, manage Nielsen encoding, sync analog FM and HD-1 while handling HD-2 to HD-6 along with supporting legacy transmitters. These are all significant challenges facing any broadcaster looking to make a move to the Cloud.

We will examine these issues and their potential solutions including IP delivery redundancy, very low bandwidth solutions, and ways to handle the other issues mentioned above – all of which can be accomplished now.



11 a.m. - Overhauling Your FM+HD Network, Managing a Changing Environment

Nick vanHaaster, GatesAir

Broadcasters are encountering a rapidly-shifting media landscape, providing new business opportunities through cloud-based and Internet workflows. Recognizing these new needs, Ross Video and Orban Labs have partnered to offer best-in-breed audio processing for on-premise or cloud deployment.

Ross' Radio and Streaming Audio Processor (RSAP), part of the scalable soft-Gear™ platform, will be reviewed. RSAP is a centralized, multi-channel audio processor for radio broadcast and streaming services, which provides best-in-class OPTIMOD audio conditioning from Orban. This solution is fully AES67/Livewire+ compatible, providing a complete end-to-end broadcast solution for processing.

11:45 a.m. - Cathodic Protection for Galvanized Guy Anchor Rods in Soil

Roger Strand, Wisconsin ECB

This presentation will cover the analysis, design, installation, and performance verification of cathodic protection systems located at several ECB tower sites.



12:30 p.m. - Lunch



1:30 p.m. - Ready or Not, Here it Comes! – Prepping for Virtualization

Jeff Welton, Nautel

Whether you're all for augmented reality and can't wait for autonomous everything or you think that running on 'somebody else's computer' is the worst idea ever and rue the day that automation was invented, some level of virtualization will invariably happen in your facility sooner rather than later. In this session, we'll discuss the concept, talk about general "safe practices" and

point out the things that typically get overlooked, but are potentially more critical than ever before, when it comes to providing a quality, reliable signal.

2:15 p.m. - Changing the Landscape of FM Broadcast Antenna Technology

Nicole Starrett, Dielectric

It has been many years since new game-changing technologies have been introduced in FM broadcast market. The many advantages of slotted coaxial pylon antenna technology that have benefitted the UHF and high band VHF broadcast community for decades can now be realized in the FM band.

Those benefits include smaller size leading to low wind load, fewer parts and fewer connections leading to higher reliability and a high degree of both azimuth and elevation pattern flexibility. In most applications, the use of slotted coaxial antennas has been limited to single channel television operation. In this presentation, the use of slotted coaxial pylon antenna technology in the FM band is presented. Discussion includes the techniques used to increase the bandwidth of pylon technology producing a product capable of full FM band operation. In addition to pylon technologies being applied to FM broadcast, new FCC rule changes now permit directional FM antenna modeling to use computational methods which will allow FM broadcasters to transition from physical modeling to a more efficient, economical, and accurate computer simulated modeling procedure. To take full advantage of the ruling, AI-based innovations have been developed to fully automate the optimization of FM antenna geometries replacing slow trial and error range measurements. The scripts are not compromised by time or material constraints and provide solutions that are completely optimized. The AI simulation approach



also eliminates inherent human and range measurement errors associated with traditional measurement techniques.



3 p.m. - Advancing Radio Technology at NAB

David Layer, NAB

As a membership organization, NAB is governed by and works to serve its radio and TV broadcaster members in a variety of ways. The NAB Technology Department focuses on helping to advance radio and TV technology and on providing technical support to the other parts of NAB, in particular the Government Relations and Legal departments. In this presentation, David

Layer will offer a glimpse into the recent radio activities of the Technology Department, highlighting the most interesting and relevant projects on the cutting edge of radio technology as well as the most impactful contributions on the regulatory front.

4 p.m. - Exclusive Exhibit Time

7 p.m. - Nuts and Bolts: Free, Cheap Tools for Remote Monitoring

Tim Wright, Cumulus

In today's broadcast environment, we are all being challenged by the reality of loss of engineering talent due to retirement and the lack of young persons interested in making broadcasting a career. This results in fewer people being responsible for more facilities that are spread out over more geographical area. This makes it necessary to remotely monitor the various studio and transmitter sites at a central location. Several commercial products aim to provide this type of service, but also come with the high cost of acquisition, proprietary software, and limited flexibility.



When the Cumulus Chicago facilities were consolidated several years ago, Tim Wright looked for a monitoring solution that could integrate multiple protocols and equipment types including broadcast hardware, building mechanicals, and IT infrastructure. Cheap would be good. Free would be better. He found a free solution. It has evolved and expanded over the years to become what it is today. He can monitor transmitters, STL's, satellite receivers, automation playback software, IP phone systems, routers, switches, Windows PC's, Linux PC's, servers, power strips, Axia nodes, UPS systems, HVAC equipment, building temperatures, and tower lights.

For this Nuts and Bolts session, Tim will be demonstrating a combination of common off-the-shelf hardware and open source software that consists of an influxdb (time series database), SNMP gathering, and manipulating programs, software that converts multiple data protocols to other data protocols, and a web-based GUI for display. Several laptops with the software preloaded will be available for hands-on experience and will be given away as door prizes at the end.

Wednesday, Oct. 12

8 a.m. - What Do I Need to do at the Transmitter Site?

Jim Leifer, American Tower Corporation

As we learn our new normal in the broadcast space, transmitter site maintenance is even more critical. We will show you some of the latest technologies used for master antenna systems. Do you know how much fuel you have left in the generator? There is always a safety and security aspect of broadcasting sites. Are you using the best solution? What about those tower lights? Who is monitoring them? What is your maintenance schedule for the site? Power failures and roof leaks are more common than you think. There are a lot of different ideas and low-cost solutions to extend the useful life of almost everything at a tower site. What is your plan B? There are many options for TV and radio to maintain operations.



8:45 a.m. - Youth Apprenticeship: A Workforce Planning Solution for Broadcast Technical Professionals

Amy Phillips, Wisconsin DWD

During this interactive session you will learn about the Wisconsin Youth Apprenticeship (YA) program that for more than 30 years has matched motivated high school students with Wisconsin businesses. In addition, you will be introduced to a new YA

Media Broadcast Technician pathway that was developed in collaboration with

industry employers and experts. This YA pathway was created to introduce youth into radio and television broadcasting and related fields. Audience participants will be encouraged to engage in a discussion on how this new YA Media Broadcast Technician pathway might be shared with and used by radio and television stations to address some of their workforce planning needs.

9:30 a.m. - Making Radio Accessible with Captions

Bill Bennett, ENCO

Radio has long been for those able to hear, for it to bring value. But for the millions of Americans who are hard of hearing or deaf, they cannot listen to radio's important breaking news, insightful interviews, meaningful biographies, stories, or even weather.



ENCO has been working on a solution for this, by utilizing its award-winning automated speech recognition platform used by countless television and streaming broadcasters and adapting it for radio (an industry ENCO has served for several decades).

In this presentation, the audience will learn just how prevalent hearing loss is, and how many potential consumers of radio are lost to its messages. We'll provide a brand-agnostic illustration of how speech recognition, captions, transcripts, and online and mobile text display methods can make live and pre-recorded radio content useful to a wider audience, while improving your operations workflow too.

10:15 a.m. - Exclusive Exhibit Time, Lunch, and Door Prizes



1:30 p.m. - Tips and Applications for Using Drones and IR Systems

Gary Cavell, Cavell Mertz

Cindy Hutter Cavell, Cavell Mertz

Engineers are discovering new and exciting ways to use drones as diagnostic tools around their radio and TV stations, and find that they can be extremely valuable for investigating a

variety of systems and structures. This session will provide tips on drone usage and applications, along with practical examples.

2:15 p.m. - Ransomware Mitigation Strategies

Mike Kelley, E.W. Scripps Company

According to the Verizon Data Breach Investigations report, ransomware attacks increased 13 percent from 2020 and accounted for 25 percent of all breaches reported. No industry is off limits or immune. In our own sector, two major broadcasters were hit with ransomware crippling their operations causing significant losses. This session will explain what ransomware is, how it works and what you should do to mitigate it.



3:15 p.m. - Radio Propagation: What You Can Learn from Images and Text

Doug Vernier, V-Soft

This presentation will cover the interpretation of unique images produced through radio and TV propagation predictions. We will look at interference-free Longley-Rice, Shadow Depth, ATSC 3.0, PTP, COST-231/Hata, Okumura, and others.

4 p.m. - Remote Production Workflows, Advantages, and Opportunities

Arco Gronenberg, LiveU

Luis Muñoz, LiveU

Traditional in-house productions involve technologies like tally, genlock, camera control, and producer-to-camera operator communications that are simple to implement in most studios and even stadiums via cabled or wireless connections. LiveU will show how all these technologies can be replicated for remote productions via a number of LiveU products and integrated technologies. Learn how this workflow can streamline operations and enhance your live content.



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4:45 p.m. - Digital DC Update – Broadcast Technology and a Dash of Policy
Sam Matheny, NAB

At the intersection of engineering and business, this session will highlight the many different technologies, trends, and related policies that the broadcast industry faces. It will focus on broadcast technology and broadcaster innovation as it relates to the traditional business and new and emerging competition and opportunity for radio, television, and digital operations. From all-digital radio to NextGen TV to streaming and data strategies, there will be a little bit of everything for the inquisitive engineer.

6 p.m. - Evening SBE Meeting

War Stories

Jeff Welton, Nautel

This should be a lively one. We'll throw up some shots of the "best of the worst." It's stuff that has been encountered in the wild and that could "use a bit of TLC." Hopefully we'll be able to collectively come up with ideas and thoughts on how to improve facilities without breaking the budget in the process – because we all know that budgets typically aren't getting a lot bigger! These days, with fewer people carrying more responsibilities, it's easy for radio station temporary to become the norm, rather than the exception. Sometimes, that might be acceptable, others it's definitely not. So, let's have some fun discussing some of our war stories and what we learned from them.



Thursday, Oct. 13



8:30 a.m. - Going 3.0
Aldrik Coispel, Enensys Teamcast

Follow the journey of a public TV station transitioning from ATSC 1.0 to 3.0. The speaker will discuss the reasons behind the transition, the challenges that it implies, and the opportunity that it creates.

9:15 a.m. - ATSC 3.0 with MMT Mobility

Jason Justman, ATSC 3.0 Technology Development and Solutions

Convergence of broadcast and broadband services by leveraging IP Multicast is an incredibly powerful aspect of the ATSC 3.0 ecosystem. But why did the TG3 adopt two different media streaming transport protocols – ROUTE/DASH and MMT (MPEG Media Transport) – essentially both designed to deliver real-time content to receiver devices?



This presentation provides real-world research and observations in evaluating ATSC 3.0 mobility. Limitations of the ROUTE/DASH transport and packaging format prevent suitable experiences for live linear content on mobility device reception.

By demonstrating the features of MMT – specifically, robust depacketization, media-fragmentation aware transport, and sparse media tracks across varying physical layer pipes – it will be shown the potential of delivering robust and reliable live linear content via ATSC 3.0 and IP multicast to the next generation of mobile handset devices and mobility receivers.



10:15 a.m. - Transitioning to IP Platforms for Broadcast
Steve Wynn, Sony

This presentation will offer background and commentary on infrastructure changes currently underway for broadcast and production facilities as core systems move to fully IP operation. Broadcast systems are moving away from point-to-point serial digital connections (SDI) to fully networked, standards driven IP interconnects, and legacy production tools are adapting and expanding to optimize a newfound flexibility. We'll

explore in this session some practical tools, emerging techniques, and planning tips for the new IP-centric production platforms likely to be a part of the next updates to broadcast facilities.

11 a.m. - Understanding and Launching an ATSC 3.0 Market

Tom Mikkelsen, BitPath

During this presentation we will review a variety of related topics. Our goal will provide the audience a better understanding of the benefits of ATSC 3.0 services and high-level advantages to broadcasters. We will explore the current "Lighthouse" concept of sharing services among local broadcasters and the building blocks of implementation covering, along with hosting agreements as well as market, technical and connectivity planning. Additionally, we will review the "nuts and bolts" of the equipment required to implement an ATSC 3.0 host in a given market. We will review generic budgetary equipment costs including the status of the industry related to ATSC 3.0 market progress in U.S. cities. Our presentation will close with an update on consumer devices and current public/PR communications activities related to NextGen television.



11:45 a.m. - Lunch

12:45 p.m. - ATSC 3.0 and Datacasting: A Lucrative New Revenue Source for Broadcasters

Ralph Bachofen, Triveni

ATSC 3.0 is driving new revenues for broadcasters by enabling the delivery of innovative datacasting applications. This session will provide a high-level technology overview of the ATSC 3.0 environment and insights into the various datacasting applications. Attendees will learn about the wealth of datacasting possibilities available in the ATSC 3.0 environment, along with data delivery optimization strategies and lessons from real-world examples.



1:30 p.m. - ATSC 3.0 System Architecture and IP Considerations

Mike Schmidt, Heartland Video Systems

Go over the ATSC 3.0 system design and IP considerations. We will also detail some of the decisions needed and how that impacts the design.

2:15 p.m. - Dynamic Resolution Encoding (DRE) and ATSC 3.0

Jing Zhou, Harmonic

ATSC 3.0 standard enables broadcasters to send higher quality signals than ever before with features like 4K UHD Resolution. However, almost all existing commercial deployments were launched only in 1080P or 720P. Launching 4K not only requires more bit rates, but also takes up more system resources, and thus presents both technical and financial challenges.

This is exactly the problem Dynamic Resolution Encoding (DRE) can help you solve. DRE Technology is based on machine learning (ML) mechanism that learns how to pick the best resolution to be encoded in a supervised learning environment. At run time, using the already existing pre-processing stage, the live encoder can decide on the best resolution to encode, without adding any processing complexity or delay. This results in higher quality of experience (QoE), lower bitrate, as well as smaller CPU footprint versus a classical fixed ladder approach.

During this session, we will take a deep dive into Dynamic Resolution Encoding (DRE) and how to transfer this new technology into an incredibly powerful weapon that will work for you.

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